

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Shubhen Kapila, et al.	Examiner: Not Yet Assigned
Serial No. Not Yet Assigned	Group Art Unit: Not Yet Assigned
Filed: Herewith	
For: Solvent and Method for Extraction of Triglyceride Rich Oil	

**PRELIMINARY AMENDMENT**

Box: Patent Application  
Commissioner For Patents  
Washington, DC 20231

Sir:

In connection with the Continuation application of Application Serial No. 09/491,185 being filed herewith, please amend the application as follows and consider the following remarks.

**CERTIFICATE UNDER 37 C.F.R. § 1.8 and § 1.10**

I hereby certify that, on the date shown below, this correspondence is being

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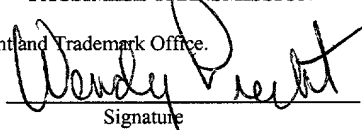
- ☐ **37 C.F.R. § 1.8**  
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Wendy Precht  
Name of Depositor

  
Signature

February 21, 2002  
Date

**IN THE SPECIFICATION**

Please amend the specification as follows:

On page 1, between the Title and the subheading FIELD OF INVENTION insert the following new paragraph:

**---CROSS REFERENCE TO RELATED APPLICATION**

This application is a continuation application which claims the priority of prior application serial number 09/491,185, entitled "Solvent and Method for Extraction of Triglyceride Rich Oil", filed January 25, 2000.---

**IN THE CLAIMS**

Please amend the following claims:

1. (Once amended) A solvent for extracting oil from an oil bearing material so as to form an extracted oil comprised of greater than 95% by weight triglycerides and other non-polar constituents, with said solvent having a polarity no greater than about 0 and a viscosity ranging between about 0.3 centipoise and about 2.6 centipoise, whereby the triglycerides are miscible in said solvent at a temperature ranging between about 35° C and about 55° C and after extraction of the triglycerides said solvent and the triglycerides form a miscella, and at a temperature ranging between about 15° C and about 25° C, said miscella will form distinct solvent and oil layers that can be separated, said solvent comprising:

(a) an amount of a low molecular weight hydrocarbon having a viscosity of less than 2.6 centipoise; and,

(b) a fluorocarbon solvent or a chlorocarbon solvent wherein said chlorocarbon is selected from the group consisting of  $\text{CH}_2\text{Cl}_2$ ,  $\text{C}_2\text{H}_3\text{Cl}_3$ , and  $\text{C}_2\text{HCl}_3$ ; with the provisos that (i) when said fluorocarbon is dichlorotrifluoroethane, said hydrocarbon is not n-pentane or isopentane; (ii) when said fluorocarbon is dichloropenta-

fluoropropane, said hydrocarbon is not a C<sub>6</sub> aliphatic or C<sub>6</sub> cycloaliphatic hydrocarbon; and (iii) when said fluorocarbon is perfluorohexane, said hydrocarbon is not isohexane.

11. (Once amended) The solvent of claim 10 wherein said fluorocarbon solvent is selected from the group consisting of C<sub>5</sub>H<sub>2</sub>F<sub>10</sub>, C<sub>6</sub>HF<sub>13</sub>, C<sub>7</sub>HF<sub>15</sub>, C<sub>10</sub>HF<sub>21</sub>, C<sub>5</sub>F<sub>12</sub>, C<sub>7</sub>F<sub>16</sub>, C<sub>6</sub>F<sub>14</sub>, C<sub>8</sub>F<sub>18</sub>, C<sub>2</sub>Cl<sub>3</sub>F<sub>3</sub>, CCl<sub>3</sub>F, C<sub>3</sub>Cl<sub>2</sub>F<sub>6</sub>, C<sub>4</sub>Cl<sub>2</sub>F<sub>8</sub>, C<sub>4</sub>Cl<sub>3</sub>F<sub>7</sub>, C<sub>6</sub>ClF<sub>13</sub>, C<sub>3</sub>HCl<sub>2</sub>F<sub>5</sub>, and C<sub>2</sub>HCl<sub>2</sub>F<sub>3</sub>.

16. (Once amended) A solvent for extracting oil from an oil bearing material so as to form an extracted oil comprised of greater than 95% by weight non-polar constituents, with said solvent having a polarity no greater than about 0 and a viscosity less than about 2.6 centipoise, whereby the non-polar constituents are miscible in said solvent at a temperature ranging between about 35° C and about 55° C and after extraction of the non-polar constituents, said solvent and the non-polar constituents separate at a temperature ranging between about 15° C and about 25° C, forming distinct solvent and oil layers that can be separated, said solvent comprising:

- (a) an amount of a low molecular weight hydrocarbon; and,
- (b) a non-polar halogenated solvent;

with the provisos that (i) when said fluorocarbon is dichlorotrifluoroethane, said hydrocarbon is not n-pentane or isopentane; (ii) when said fluorocarbon is dichloropentafluoropropane, said hydrocarbon is not a C<sub>6</sub> aliphatic or C<sub>6</sub> cycloaliphatic hydrocarbon; and (iii) when said fluorocarbon is perfluorohexane, said hydrocarbon is not isohexane.

Please cancel claims 6-8, 15 and 17-30 without prejudice.

Please add the following new claims.

31. (New) A solvent for extracting oil from an oil bearing material so as to form an extracted oil comprised of greater than 95% by weight triglycerides and other non-polar constituents, with said solvent having a polarity no greater than about 0 and a

viscosity ranging between about 0.3 centipoise and about 2.6 centipoise, whereby the triglycerides are miscible in said solvent at a temperature ranging between about 35° C and about 55° C and after extraction of the triglycerides said solvent and the triglycerides form a miscella, and at a temperature ranging between about 15° C and about 25° C, said miscella will form distinct solvent and oil layers that can be separated, said solvent comprising:

(a) an amount of a low molecular weight hydrocarbon having a viscosity of less than 2.6 centipoise; and,

(b) a fluorocarbon solvent or a chlorocarbon solvent wherein said chlorocarbon is selected from the group consisting of  $\text{CH}_2\text{Cl}_2$ ,  $\text{C}_2\text{H}_3\text{Cl}_3$ , and  $\text{C}_2\text{HCl}_3$ ; and wherein said fluorocarbon solvent is selected from the group consisting of  $\text{C}_5\text{H}_2\text{F}_{10}$ ,  $\text{C}_6\text{HF}_{13}$ ,  $\text{C}_7\text{HF}_{15}$ ,  $\text{C}_{10}\text{HF}_{21}$ ,  $\text{C}_5\text{F}_{12}$ ,  $\text{C}_7\text{F}_{16}$ ,  $\text{C}_8\text{F}_{18}$ ,  $\text{C}_2\text{Cl}_3\text{F}_3$ ,  $\text{CCl}_3\text{F}$ ,  $\text{C}_3\text{Cl}_2\text{F}_6$ ,  $\text{C}_4\text{Cl}_2\text{F}_8$ ,  $\text{C}_4\text{Cl}_3\text{F}_7$ , and  $\text{C}_6\text{ClF}_{13}$ .

32. (New) A solvent for extracting oil from an oil bearing material so as to form an extracted oil comprised of greater than 95% by weight non-polar constituents, with said solvent having a polarity no greater than about 0 and a viscosity less than about 2.6 centipoise, whereby the non-polar constituents are miscible in said solvent at a temperature ranging between about 35° C and about 55° C and after extraction of the non-polar constituents, said solvent and the non-polar constituents separate at a temperature ranging between about 15° C and about 25° C, forming distinct solvent and oil layers that can be separated, said solvent comprising:

(a) an amount of a low molecular weight hydrocarbon; and,

(b) a non-polar halogenated solvent;

wherein said non-polar halogenated solvent is selected from the group consisting of  $\text{CH}_2\text{Cl}_2$ ,  $\text{C}_2\text{H}_3\text{Cl}_3$ ,  $\text{C}_2\text{HCl}_3$ ,  $\text{C}_5\text{H}_2\text{F}_{10}$ ,  $\text{C}_6\text{HF}_{13}$ ,  $\text{C}_7\text{HF}_{15}$ ,  $\text{C}_{10}\text{HF}_{21}$ ,  $\text{C}_5\text{F}_{12}$ ,  $\text{C}_7\text{F}_{16}$ ,  $\text{C}_8\text{F}_{18}$ ,  $\text{C}_2\text{Cl}_3\text{F}_3$ ,  $\text{CCl}_3\text{F}$ ,  $\text{C}_3\text{Cl}_2\text{F}_6$ ,  $\text{C}_4\text{Cl}_2\text{F}_8$ ,  $\text{C}_4\text{Cl}_3\text{F}_7$ , and  $\text{C}_6\text{ClF}_{13}$ .

**REMARKS**

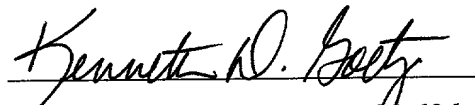
Claims 1 and 16 have been amended and new claims 31 and 32 added to more particularly claim the solvent of Applicant's invention. Claims 1 and 11 have been amended to more particularly claim the halogenated hydrocarbon of Applicants' invention. Support for the amendment to claims 1 and 11 can be found in the specification of the exemplary fluorocarbons and chlorocarbons at least at page 17, line 20. Support for the amendment to claim 1, line 7, can be found in the specification at least at page 8, lines 17-20, and page 9, lines 1-5. An obvious typographical error on the molecular formula of one fluorocarbon has also been corrected in claim 11. Support for the correction can be found in the specification at least at page 21, Example 1. Support for the amendment to claim 16 can be found in the specification at least at page 20, lines 6 and 12. Support for new claims 31 and 32 can be found in claims 1 and 16, and in the specification at least at page 17, lines 17-20. No new matter is introduced by any of the amendments to claims 1, 11 or 16, or by new claims 31 and 32. Claims 1-5, 9-14, 16, 31 and 32 are currently in the application for examination.

It is respectfully requested in accordance with the amendment of claims, that claims 1-5, 9-14, 16, 31 and 32 be found allowable.

Should the Examiner believe that issues remain outstanding, the Examiner is respectfully requested to call Applicants' undersigned attorney in an effort to resolve such issues and advance this application to issue.

Respectfully submitted,

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Marked-up Version of Amended Claims

1. (Once amended) A solvent for extracting oil from an oil bearing material so as to form an extracted oil comprised of greater than 95% by weight triglycerides and other non-polar constituents, with said solvent having a polarity no greater than about 0 and a viscosity ranging between about 0.3 centipoise and about 2.6 centipoise, whereby the triglycerides are miscible in said solvent at a temperature ranging between about 35° C and about 55° C and after extraction of the triglycerides said solvent and the triglycerides form a miscella, and at a temperature ranging between about 15° C and about 25° C, said miscella will form distinct solvent and oil layers that can be separated, said solvent comprising:

- (a) an amount of a low molecular weight hydrocarbon having a viscosity of less than 2.6 centipoise; and,
- (b) a fluorocarbon solvent or a chlorocarbon solvent wherein said chlorocarbon is selected from the group consisting of CH<sub>2</sub>Cl<sub>2</sub>, C<sub>2</sub>H<sub>3</sub>Cl<sub>3</sub>, and C<sub>2</sub>HCl<sub>3</sub>, with the provisos that (i) when said fluorocarbon is dichlorotrifluoroethane, said hydrocarbon is not n-pentane or isopentane; (ii) when said fluorocarbon is dichloropentafluoropropane, said hydrocarbon is not a C<sub>6</sub> aliphatic or C<sub>6</sub> cycloaliphatic hydrocarbon; and (iii) when said fluorocarbon is perfluorohexane, said hydrocarbon is not isohexane.

11. (once amended) The solvent of claim 10 wherein said fluorocarbon solvent is selected from the group consisting of C<sub>5</sub>H<sub>2</sub>[5]F<sub>10</sub>, C<sub>6</sub>HF<sub>13</sub>, C<sub>7</sub>HF<sub>15</sub>, C<sub>10</sub>HF<sub>21</sub>, [C<sub>8</sub>H<sub>8</sub>F], C<sub>5</sub>F<sub>12</sub>, C<sub>7</sub>F<sub>16</sub>, C<sub>6</sub>F<sub>14</sub>, C<sub>8</sub>F<sub>18</sub>, C<sub>2</sub>Cl<sub>3</sub>F<sub>3</sub>, CCl<sub>3</sub>F, C<sub>3</sub>Cl<sub>2</sub>F<sub>6</sub>, C<sub>4</sub>Cl<sub>2</sub>F<sub>8</sub>, C<sub>4</sub>Cl<sub>3</sub>F<sub>7</sub>, C<sub>6</sub>ClF<sub>13</sub>, C<sub>3</sub>HCl<sub>2</sub>F<sub>5</sub>, and C<sub>2</sub>HCl<sub>2</sub>F<sub>3</sub>], CH<sub>2</sub>Cl<sub>2</sub>, C<sub>2</sub>H<sub>3</sub>Cl<sub>3</sub>, and C<sub>2</sub>HCl<sub>3</sub>].

16. (Once amended) A solvent for extracting oil from an oil bearing material so as to form an extracted oil comprised of greater than 95% by weight non-polar constituents, with said solvent having a polarity no greater than about 0 and a viscosity less than about 2.6 centipoise, whereby the non-polar constituents are miscible in said solvent at a temperature ranging between about 35° C and about 55° C and after extraction of the non-polar constituents, said solvent and the non-polar constituents [form

a miscella,] separate at a temperature ranging between about 15 °C and about 25 °C, forming distinct solvent and oil layers that can be separated, said solvent comprising:

- (a) an amount of a low molecular weight hydrocarbon; and,
- (b) a non-polar halogenated solvent;

with the provisos that (i) when said fluorocarbon is dichlorotrifluoroethane, said hydrocarbon is not n-pentane or isopentane; (ii) when said fluorocarbon is dichloropentafluoropropane, said hydrocarbon is not a C<sub>6</sub> aliphatic or C<sub>6</sub> cycloaliphatic hydrocarbon; and (iii) when said fluorocarbon is perfluorohexane, said hydrocarbon is not isohexane.

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